DOCUMENT RESUME

ED 230 761 CE 036 215

AUTHOR McKee, Barbara G.; Schroedl, Kathleen J.
TITLE SIGI at NTID. A Brief Overview of the History and Implementation of the System for Interactive Guidance and Information (SIGI) at the National Technical Institute for the Deaf.
PUB DATE Nov 81
NOTE 13p.; For a related document, see ED 223 821.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Career Education; *Career Guidance; *Career Planning; *Computer Oriented Programs; Deafness; Decision Making; Guidance Programs; *Hearing Impairments; Information Systems; Occupational Information; Postsecondary Education; Program Effectiveness; *Program Implementation; Technical Institutes; Use Studies
IDENTIFIERS *National Technical Institute for the Deaf; *System of Interactive Guidance and Information

ABSTRACT

As early as July 1974, the System of Interactive Guidance and Information (SIGI), a computer-based aid to career decision making, had been identified for possible use at the National Technical Institute for the Deaf (NTID). A task force that intensively studied SIGI and its potential for use within NTID recommended that it be brought to NTID. For its successful implementation, the task force recommended certain support services such as a counseling coordinator, a resource assistant, and a research associate. During the three years that SIGI has been in use at NTID, several different implementation strategies have been tried, including totally independent student interaction, use during the Summer Vestibule program, SIGI as a requirement of a career decision-making class, career counseling, pairs of students going through SIGI together, and SIGI as extra credit in other courses. Results of evaluation of SIGI's effectiveness indicated that students and career counselors reported very positive feelings about SIGI's potential use at NTID. Recently, development of a computer program to summarize data from a group of students has been undertaken. The data collection option could be used to study students' comprehension and the use of the various subsystems and allow for comparison of NTID users and normal hearing students. (YLB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED230761

S I G I A T N T I D

A Brief Overview of the History and Implementation of the System for Interactive Guidance and Information (SIGI) at the National Technical Institute for the Deaf

November, 1981

Barbara G. McKee
Department of Educational
Research and Development

Kathleen J. Schroedl
Department of Career Exploration

CG 362 15

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

BMcKee

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

This report is intended to provide the reader with a brief overview of the SIGI computerized career guidance system, why it was chosen to be part of the counseling services to NTID students, how it is currently being implemented at NTID, and what research has been conducted with SIGI and will be conducted in the future. Additional information is available upon request from the authors.

Table of Contents

	Page
What is SIGI: An overview of the SIGI system.....	1
Why SIGI: A review of the decision to bring SIGI to NTID.....	3
SIGI at NTID: A summary of the implementation and use of SIGI...	4
Early Research with SIGI at NTID.....	5
Current and Future Research with SIGI at NTID.....	8

An Overview of SIGI

The System of Interactive Guidance and Information, or as it is more commonly called -- SIGI -- is a computer-based aid to career decision making. The system was designed by Educational Testing Service (ETS) to apply computer technology to assist people in examining their work values, exploring a variety of career options, evaluating relevant occupational data, and formulating tentative career plans. SIGI initially was intended for use primarily by community college students. Very early in the developmental planning stage, this was expanded to include four-year college students. Additional materials currently are being developed to further expand the use of SIGI to include adults who are changing careers or returning to the job market.

SIGI is made up of six interrelated subsystems: Values, Locate, Compare, Prediction, Planning, and Strategy. The first time a student uses SIGI, he/she must proceed through each subsystem in the prescribed order. After having progressed through SIGI one complete time, a student is able to wander freely through any of the subsystems as often as desired. It typically takes a student 2 to 4 hours to go through all the systems one time.

Two of the SIGI subsystems, Prediction and Planning, are made up of information specific to the institution using SIGI. The Prediction system is comprised completely of local information and the Planning system is comprised of approximately 50% local information. At the present time NTID has not included any local information.

Each SIGI subsystem has two broad functions. The first is to organize and dispense information; the second is to teach a step in a decision-making

process. Table 1 provides an explanation of the subsystems, the activity the student undertakes in each and the step each subsystem occupies in the decision-making model.

It is important to mention that SIGI is intended to be used as a counseling tool. This means that counselors can, and frequently should, provide off-terminal counseling support for students using SIGI. At the same time, by providing quick and easy access to a wealth of career-related information, SIGI frees the counselor to spend more time on other activities.

Students interact with SIGI via cathode ray tube terminals. Displays are presented on the terminal and students may either respond to a question, ask a question, or give directions to the computer by pressing the designated key. The pace of SIGI is flexible and is controlled by the individual user. The text within SIGI is at the eighth-grade reading level. The SIGI program has the ability to record all the responses a student makes and to make reference to this information at various points in the program.

The decision to bring SIGI to NTID

Very early in the history of NTID it was recognized that a vast amount of occupational information must be available to NTID students in order to provide for their career education needs. It was also recognized that there are clear benefits to be gained from the power of a computer to store large amounts of information and to provide access to this information.

As early as July, 1974, SIGI had been identified for possible use at NTID. In the ensuing three years, a task force intensively studied SIGI and its potential for use within NTID. The work of the Task Force included

TABLE 1

The SIGI subsystems and their place in the decision-making paradigm*

Subsystem	What the student does	Step in the decision-making process
(Introduction)	Learns concepts and uses of major systems.	
1. VALUES	Examines 10 occupational values and weights the importance each.	Find out what you want.
2. LOCATE	Puts in specifications for 5 values at a time and gets lists of occupations that meet the specifications.	Find out where you can get what you want.
3. COMPARE	Asks questions and gets specific information about occupations of interest.	Get information for judging the advantages and disadvantages of your options. Narrow down your list of options.
4. PREDICTION[1]	Finds out probabilities of getting various grades in key courses of programs that prepare for occupations.	Assess the probabilities of success for each option.
5. PLANNING[2]	Sees the steps to be taken to prepare for an occupation, including the program at the local college.	Plan a course of action for each option.
6. STRATEGY	Evaluates occupations in terms of the rewards they offer and the risks of trying to enter them.	Apply a rational decision-making strategy to occupational choice.

[1]This subsystem is currently not available on the NTID version of SIGI.

[2]This subsystem currently exists in an abbreviated form on the NTID version of SIGI.

*Table 1 from: Slusher, N.L., & White, K.R. A preliminary evaluation of the system for interactive guidance and information with NTID students. Unpublished manuscript, National Technical Institute for the Deaf, 1978.

gathering as much information as possible from institutions that were then using SIGI and from field tests of SIGI conducted by the Educational Testing Service. The Task Force also arranged for eight NTID students to visit ETS and spend two days interacting with SIGI. This interaction was closely observed by members of the Task Force which included career counselors and language specialists. Two members of the Task Force also conducted as assessment of the SIGI occupational data base.

Based on the above information, the Task Force recommended that SIGI be brought to NTID, although they cautioned that, in order to be successfully implemented in this environment, certain support services such as a counseling coordinator, a resource assistant and a research associate were necessary to assist NTID students in effectively using SIGI. The recommendations of the Task Force were released in the Fall of 1976.

During 1977, plans for implementing SIGI at NTID were carried to completion, and SIGI was in place and operational at NTID in March of 1978.

Implementation of SIGI at NTID

A PDP-11 mini computer, five CRT terminals and four printers were purchased by NTID for use with SIGI. The computer and one terminal are installed in the NTID computer room and are not accessible to students. One terminal and printer are located in the counseling center at RIT and are available to all RIT students. The other three terminals and three printers are housed in the Department of Career Exploration on the first floor of Peterson Hall (Dorm B) and are for use by NTID students. Recently, equipment was purchased that allows the movement of SIGI terminals and printers to other locations within NTID or RIT.

SIGI falls under the auspices of the Department of Career Exploration, which is part of Special Programs. The counseling implementation activities related to SIGI and the daily management of SIGI are handled by a SIGI Specialist. The SIGI Specialist is a professional counselor who maintains a small caseload of vocationally undecided students in addition to SIGI responsibilities.

During the three years that SIGI has been in use at NTID, several different implementation strategies have been tried, including:

(1) totally independent student interaction with SIGI;

(2) use of SIGI during the Summer Vestibule Program;

(3) SIGI required as part of a career decision-making class;

(4) career counseling during use of SIGI;

(5) pairs of students going through SIGI together;

(6) SIGI as extra credit in other courses.

Additional information concerning the strengths and weaknesses of various implementation strategies is available from the SIGI Specialist. Most of the students who use SIGI have learned about it from their counselors or by word of mouth from other students. Table 2 summarizes the number of students who have used SIGI in various quarters during the last two years.

Early Research with SIGI at NTID

Evaluation of the effectiveness of SIGI began almost immediately after it was installed. During the spring quarter of 1978, Nancy Slusher and Karl White examined students' ideas about SIGI, students' comprehension of certain SIGI frames and career counselors' ideas about SIGI as a data base. Their results indicated that both students and career counselors reported very

TABLE 2

NTID Student Use of SIGI from Summer Quarter 1979

through SVP 1981

Quarter	Total Number	Completed* All Subsystems	Stopped At Planning	Stopped At Compare	Stopped At Locate	Stopped At Values	Introduction Only
SVP '81	54	18 (33.3)**	9 (16.7)	4 (7.4)	6 (11.1)	11 (20.4)	6 (11.1)
Spring '81	35	21 (60.0)	2 (5.7)	3 (8.5)	3 (8.5)	4 (11.4)	2 (5.7)
Winter '80-'81	30	20 (66.7)	1 (3.3)	4 (13.3)	2 (6.7)	2 (6.7)	1 (3.3)
Fall '80	60	29 (48.3)	3 (5.0)	7 (11.7)	6 (10.0)	11 (18.3)	4 (6.7)
SVP '80	52	23 (44.2)	7 (13.5)	2 (3.8)	2 (3.8)	12 (23.1)	6 (11.5)
Spring '80	56	39 (69.2)	2 (3.6)	6 (10.7)	5 (8.9)	4 (7.1)	0
Winter '79-'80	67	36 (53.7)	2 (3.0)	10 (14.9)	6 (9.0)	9 (13.4)	4 (6.0)
Fall '79	45	27 (60.0)	3 (6.7)	3 (6.7)	3 (6.7)	5 (11.1)	4 (8.9)
SVP '79	44	24 (54.5)	1 (2.3)	3 (6.8)	6 (13.6)	7 (15.9)	3 (6.8)
Two Year Total	389	219 (56.3)	21 (5.4)	38 (9.8)	33 (8.5)	54 (13.9)	24 (6.2)

*Also includes students from earlier quarters who repeated subsystems.

**Numbers in parentheses are a percentage of the total number.

positive feelings about the potential use of SIGI at NTID. However, "although virtually all students really liked SIGI and thought it was a worthwhile experience, most of them had significant difficulty understanding and comprehending important parts of the various subsystems" (Slusher & White, 1978, p. 30).

During the summer of 1978, SIGI was incorporated as an integral part of four Career Planning Seminars (CPS groups) involving thirty-six students and five counselors. Some of the students who used SIGI in their CPS groups were interviewed. During the interview, students were asked certain questions related to their reasons for making specific career decisions. A group of non-SIGI students was interviewed in a similar fashion. Counselors then rated the transcripts of the interviews to obtain a measurement of the "goodness" of the students' career decisions. No significant differences were found between the responses of the group of SIGI students and the responses of the group of non-SIGI students.

Beginning in winter quarter, 1979, all students using SIGI completed a pre-SIGI questionnaire, and all students who went through the six subsystems of SIGI completed a post questionnaire. These questionnaires contain both affective and cognitive items. In June of 1980, two reports were completed summarizing the data from the pre- and post-SIGI questionnaires from winter, 1979, through winter quarter, 1980. The reports indicated that students continued to hold extremely positive attitudes toward SIGI. However, some differences surfaced between summer quarter students (who use SIGI to help decide on a major) and other students (who use SIGI to find out about possible jobs in their major). A suggestion was made to analyze these groups separately

in the future. The reports also indicated that both the concept of values and the definition of the specific values taught in SIGI are understood by most of the students who used the system during the four quarters. However, the concept of process, or at least "career decision making process," is not understood by almost half of the students.

Plans for Future Research with SIGI

ETS programmed SIGI with an optional data collection routine that enables the machine to automatically record student responses to most of the displays. However, the method of storing that information does not allow for summary of the data across students. During the past six months, the Research Associate assigned to the SIGI project has been coordinating the development of a computer program that will make such data summary feasible. When all the bugs are worked out of the program, it will enable NTID to build an increasingly large computerized data base that will allow NTID to answer a wide variety of questions concerning students' comprehension and use of the various subsystems of SIGI. The data collection option will also be used with a limited number of RIT students and Genesee Community College students to provide a comparison group of normal hearing students. The flexibility of SIGI and the complexity of some of the subroutines make the task of picking out certain similar pieces of information for all students extremely complex. It is hoped that the program will be operational by January of 1982. (Original plans called for this task to have been completed by June of 1981, but this was overly optimistic.)

Once the problems with the internally stored data have been solved along with some other problems of collecting data from the comparison groups, research efforts will concentrate on answering the following questions:

(1) Do students continue to react favorably to SIGI? What method or methods of implementation of SIGI contribute most to a favorable reaction?

(2) What are the characteristics of students who can and cannot satisfactorily use SIGI?

(3) Is there a difference in student comprehension and use of the different subsystems of SIGI?

(4) Are there differences in the characteristics of students who use SIGI because they are referred by a counselor or teachers and those who use SIGI on their own initiative?

(5) Are there differences in attitudes and characteristics between those students who finish SIGI and those who do not complete all the subsystems?

It is planned that a major report on SIGI will be completed in fall, 1982. The report will answer the above questions and will summarize what has been learned about SIGI during the four years it has been at NTID.